NASA Scatterometer Experiment

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This paper describes the four parts of the NASA Scatterometer (NSCAT) Experiment: the instrument, the ground system, the calibration and validation program, and the science studies. The instrument developed by NASA/JPL is being flown onboard the National Space Agency of Japan's Advanced Earth observation Satellite (ADEOS) and represents a major collaborative effort between USA and Japan in Earth remote sensing. The instrument is a Ku-band scatterometer, has a mass of 280 kg, uses 240 W of spacecraft power, and has a 600" km swath on each side of the nadir track. It will infer ocean surface wind speed and direction over 90% of the ice-free oceans every two days by measuring the radar normalized backscatter cross-section over several different azimuth angles. The ground system then uses a quantitative model of backscatter as a function of the wind vector and the measurement geometry to retrieve the winds.

An intense calibration and validation program is planned. A ground station has been built and located at White Sands Test Facility for direct calibration of the instrument. Also, a number of validation experiments will be undertaken in the fall of 1996 sponsored by both US and Japanese agencies. The 28 science investigators are members of NASA's NSCAT and Japanese ADEOS Science Teams and studies include atmospheric, oceanic, and climate investigations. in addition to the science investigations, near real time data will be obtained via a ground system and distributed by NOAA to other operational agencies and users.

The paper will describe instrument design and operation, science data processing and distribution approach, status of the instrument in orbit, and performance.

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